

IMPROVEMENTS IN THE MANUFACTURE OF METALS.

Specification of patent granted to Edward Joseph François Dutrie du Boucquet, of Cuy's Works, near Swansea, engineer and metallurgist, for improvements in the manufacture of lead, tin, tungsten, copper, and zinc, from ores, and also, and other products, and in the manufacture of their alloys with other metals.—From *Newton's London Journal* for March.]

The first part of this invention relates to the treatment of the above-mentioned ores, slags, and other products, in blast-furnaces; and consists in constructing the apparatus in the manner described in the specification of a patent granted to the present patentee, November 11, 1841, so as to insure the complete condensation of all metallic fumes produced during the smelting process; taking care to force the gases through water, after leaving the last condensing chamber, in order that a perfect deposition of all metallic or other particles, which might otherwise have been carried away by the draft or blast, may take place. The second improvement comes into operation when the ores, &c., are not treated in blast-furnaces; and consists, chiefly, in submitting them to the reiterated action of muriatic, sulphuric, or other acid, after they have undergone such preparation as would render them soluble in acid, if they were not so by their mineralogical nature; they are then precipitated and separated by such re-agents as the case may require. As regards the manufacture of lead from ores, &c., when they are in the states of oxides, carbonates, silicates, phosphates, or arseniates, they are reduced in the furnace usually employed in the manufacture of lead, having a series of condensing chambers applied to it; care being taken, during the process, to prevent any access of air, except such as may be supplied from the blast apparatus. The foregoing process and apparatus is equally applicable for condensing the fumes produced in refining silver, lead, and in the conversion of lead into litharge. When the ores, &c., are in the states of sulphurets, sulphites, or sulphates, they may be either wholly or partially calcined, or treated directly with such a quantity of iron, or iron ore, as would be required to form a compound of iron and sulphur, with the assistance of carbonaceous matter, and thereby reduce the lead to its metallic state; the fumes which may be produced in the treatment being condensed in the manner before-mentioned. In manufacturing tin from its ores, by the application of either furnace (the condensing apparatus, before-mentioned, being used), all the fumes will be condensed, and a larger quantity of earthy flux can be used, so as to lessen the quantity of tin left in combination with the slag. When tin is to be obtained from slag, the latter should be treated in either of the furnaces previously alluded to, with such a quantity of flux as will be sufficient to displace the tin and other metals in combination with the slag. The alloy, obtained in this manner, is dissolved in muriatic or sulphuric acid, to obtain the various metals separately. When muriatic acid is used, the tin and iron will be dissolved, leaving, nearly untouched, any tungsten which may exist in the product operated on; the tin can be precipitated, in a metallic state, by the use of zinc, or in the state of sulphuret of tin, by the use of sulphuret of hydrogen, or any other sulphuretted base; in the latter case, metallic tin can be obtained from the sulphuret by a proper calcination, and a subsequent reduction of the oxide thereby obtained; and when sulphuric acid, properly diluted, is used, the iron only will be dissolved, and a useful alloy may be obtained, by fusing together the tin and tungsten, with the assistance of a flux. The foregoing treatment is applicable for obtaining tungsten from tungstate of lime. The course pursued in the manufacture of tungsten from its ore, called woodframe, is to reduce the latter, by the use of an alkaline base, in a proper furnace or crucible, at a high temperature; the product being then dissolved in muriatic or sulphuric acid, the tungsten is left in a metallic state. An alloy may be obtained from the ore, by the use of an oxide of tin, copper, or iron, with a suitable flux; and from this alloy the tungsten can be separated by treating it with acid.

As regards copper ores, &c., they are converted into carbonates or oxides, by a preparatory calcination, and then exposed in a vessel to the action of sulphuric acid, in the gaseous state, or otherwise; the acid combines with the oxides, and the soluble sulphates, thus formed, will be dissolved and concentrated by the repeated leaching of the mass with water, until it becomes sufficiently concentrated to permit of the copper being precipitated from the sulphates, either by means of iron, or sulphuret of hydrogen, or other sulphuretted bases. The sulphates left after this treatment may be concentrated and crystallized, in the manner usually practised. The patentee also describes, under this head of the invention, a method of producing sulphuric acid, by treating the sulphurets of iron, copper, zinc, or other metals, in a furnace similar to that described in the specification of his patent of May 31, 1838—with this modification, that a blast of air is employed, at a pressure above that of the atmosphere. As regards the manufacture of zinc, in addition to the process described in the above specification, the patentee claims the use of the condensing apparatus, before described, either applied to blast, air, or reverberatory-furnaces.

The third part of this invention consists in the manufacture of the following alloys:—An alloy of tin and tungsten, composed of from sixty to ninety-five parts of the former, and from forty to forty-five parts of the latter. An alloy of tungsten and copper, in the above proportions. An alloy, formed by combining either of the usual alloys of tin and copper with the like proportion of tungsten. An alloy of zinc and tin, composed of from ninety-five to ninety-seven parts of the former, and from three to five parts of the latter. An alloy of zinc and copper is formed in the following manner:—A crucible, crucible, or pot, is half filled with a mixture of calcined zinc-ores and carbonaceous matters, and upon these a tray, made of the same material as the pot, is placed, fitting exactly within the pot. This tray contains the copper required to form the alloy, and has a number of small apertures in it, to allow of the escape of the zinc combining with the copper, but, at the same time, prevent the contact of the zinc and flux therewith. The vessel being closed, the process is carried on in the same manner as zinc-ores are usually reduced. The fumes of the zinc combine with the copper, in a regular and constant proportion, and the oxides of zinc, escaping, may be condensed. When the process has been carried on for a sufficient length of time, the crucible is opened, and the divided alloy, found on the tray, is melted in a proper vessel, and the process repeated; to this alloy 3 per cent. of tin may be added. From the alloy thus obtained, another alloy may be produced, containing from four-tenths to six-tenths of its weight of zinc, by the addition, during the melting of the alloy, of so much metallic zinc as would be required to constitute an alloy of the above proportions; and by the addition to this alloy of from 2 to 3 per cent. of tin, a still further improvement is effected.

The patentee claims the improved process, above described, of condensing the fumes produced in treating lead-ores, slag, or other products; the same in treating tin-ores; also in treating copper-ores; also in treating zinc-ores, without claiming any apparatus hitherto used in such manufacture—but claiming, in the manufacture of the above metals and alloys, the method of using sulphuric acid. He also claims the treatment of the slags and other products, as above described, and the treatment for the production of tungsten; also the invention of various alloys of metals, in the proportions above stated; and, lastly, the mode of alloying zinc from its ore, with copper, as described.

APPENDIX TO COAL MINES.—Our valued correspondent, John Walker, F.R.S., F.L.S., F.G.S., &c., is possessed of the heading object he has so frequently addressed to our columns—the importance of legislative interference, the better to secure the protection of the miners, combined with safer and more efficient means for working coal-mines; so determined (as will appear) beyond all controversy, while the resources of modern science intermediately to accomplish.—has printed a series of notes, addressed by him to the South Wales' Committee for investigating the Causes of Accidents in Coal-Mines, which are replete with interest on this important subject, and deserving the most careful perusal. The recommendations are printed in a neat pamphlet form, and published at no moderate price so as to secure extensive circulation. The author has forwarded a copy, and we shall be happy to address them to any party who may require a copy.

Stonewall's Discovery of Copper Oxide.—It is well-known fact, that copper mining in Cleveland is of comparatively recent origin, and that the mines in this country were, at no very remote period, worked only for tin, the copper ore being considered as useless, and, consequently, thrown aside. A singular confirmation of this was just received in evidence to the neighbourhood of Clevedon.—Captain Thorne, the contractor, is removing the old bridge, permitted among the stones of which they were supposed to have been scattered some of their metallic oxides, and has already selected from them several tons of copper-ore. These stones had, as doubtless, been raised by miners in search of tin, of a period when their value was not known, and used as materials for constructing the bridge in which they were found. Capt. Thorne, in accounting for the job, had been so fortunate as to escape the stones of the old bridge, and in consequence, a considerable gain by the discovery.—*Post Office.*

Railway Accidents.—At the suggestion of Mr. Chisholm, Mr. Wallace has prepared for us, until after the report of the committee has been brought forward, which is expected to be about three weeks off.

ORIGINAL CORRESPONDENCE.

TICKETINGS.—ACTUAL AND REPRESENTED AMOUNTS.

SIR.—The notice which you have taken in your valuable Journal of last week, under the head of "Ticketings, Actual and Represented," of the discrepancies in the sale of certain parcels of copper ore, is undoubtedly calculated, in some degree, to benefit the public; but your correspondent should have gone further, and have informed you, that the very glaring deficiencies upon several parcels, alluded to in his letter, did actually happen at the last sale of ore in —— Mine, in this parish—and, for what purpose, it does not seem so difficult to divine, when we look to the fact, that a party here in direct connection with the management of the concern is also a seller of shares in the London market; and the mine has recently been raised, by contrivance, to the fictitious value of 30,000/- notwithstanding (as is well known here) there must be an immediate call of 3000/- upon the adventurers, in order to continue the works of the mine—and such calls, without great improvements in their prospects, must be made again and again.

For the honour of the county, I have the pleasure of adding, that similar mistakes in the estimated quantities of copper-ores for sale at the ticketings are of very rare occurrence—nay, I may say, they can never be the effect of accident, but the design is obvious; and, if your correspondent had also (as, I conclude, he might have done) called your attention to the actual state of the accounts of the undertaking, it would tend greatly to elucidate and explain the practices of the party referred to.

Camborne, Feb. 26.

The information supplied by "An Observer" was also furnished by "J. J." in his communication of last week; but the opinion we entertained of many parties connected with the concern induced us then, as it does now, to withhold the name of the mine from publicity, in the hope that a satisfactory explanation can be given, and which we shall most readily insert in our columns. We have received several other letters, the publication of which, we feel assured, will not be required after the one of "An Observer," which well expresses sentiments apparently generally entertained. The proposed emendations of "An Observer" will be most acceptable; and the more extended the information, the more general will be their interest.]

THE INVENTOR OF THE SAFETY LAMP.

SIR.—An inscription in Dr. Murray's last letter renders it absolutely requisite for me to reply to him, and to show that my respected friend, Dr. Clanny, does not without reason charge Sir H. Davy with pirating two forms of his (Dr. Clanny's) original safety lamp. In a foot-note to page 307 of Dr. Parry's life of Davy we find the following:—After a description of the safety lamp of Dr. J. Murray, of Edinburgh, he proceeds, "One of the most active and intelligent members of the Society for Preventing Accidents in Coal Mines (Dr. Clanny) had for some time paid particular attention to the subject in contemplation. He first suggested the idea of an insulated safety lamp, of which an account appeared in the *Philosophical Transactions* for 1815." In the same work, page 313, are descriptions of four lamps, in a letter from Sir H. Davy to Dr. Gray:—"The Blowing Lamp, in which 'the candle and lamp burns in a close lantern, having a tube below of small diameter for admitting air, which is thrown in by a small pair of bellows, and a tube above of the same diameter, furnished with a cap filled with oil.' Now, Sir, I ask your impartial and candid readers to determine, whether this was not a slight modification of Dr. Clanny's first plan of insulation?" In the next paragraph to that just quoted, we have another lamp, called the Piston Lamp, described, which, likewise, can only be regarded as a modification of Dr. Clanny's original lamp. But in both these cases the slight alterations are calculated to destroy the safety of the original lamp; and that this was *sic!*, was proved by the heroic experiments of Dr. Clanny, and by the after-use of the apparatus. The observation with regard to the only effect of Davy's slight alterations, will be found in the words of the editor of the *Annals of Philosophy* (1815), vol. vi., p. 454, where he renders an account of Sir H. Davy's paper on these lamps, read before the Royal Society, Nov. 9, 1815.

I only refer to the controversy with regard to another matter—viz., the discovery of the principle of safety in the use of wire-gauze, or capillary tubes—in order to assert, that every statement made in support of Dr. Clanny's merits as an inventor is capable of being supported by documentary evidence. If Dr. Murray can now produce and authenticate a copy of his work, containing an account of the safety lamp which he claims, before Dr. J. Murray gave his to the world, I, for one, whatever value may be set on the acknowledgment, shall publicly admit that I have been in error. It is false, to say that I have made any innovation—least of all, a "vile imitation."—*Newcastle, Feb. 26.* R. M. GLOVER, M.D.

WORKING COAL MINES, &c.

SIR.—The subject of "safety lamps" must be cast into shadow, in the permanent question which ought to be brought prominently before the public, because the safety lamp is a danger to danger, and throws us off our guard, in reference to the grand objects which ought to be kept steadily in view—viz., these "necessary things"—*i.e.*, an entirely new system of working coal-mines; and, &c., a vast improvement in the management of those now being worked. Everything else is subordinate. These, therefore, should be kept in bold and prominent relief, and other considerations merged as of secondary interest. The plans of working the coal in common use have been tried in the balance of induction, found "wanting," and universally defective. In passing through Dursley, the other day, I asked (on Wednesday last) a coal viewer and pitman whether he knew Mr. James Ryans? He had not even heard the name before! He told me a coal-pit accident had occurred some days before, with a loss of life amounting to thirty-five—forget where the accident had happened! As far as my judgment extends, I cannot decide what ingredient predominated in this prostration—ignorance or self-conceit. What I want to see, Sir, is simply this—the light of science guiding the hand of practice. We do know that there are leading truths in geology, even amid the difficulties and perplexities of the science; and that the practical miner fully avails himself of them.—Certainly not. There are certain fixed and invariable laws to which the phenomena of ventilation are subject and obedient; has the science mastered these laws, as the rule of his conduct, in the operations of the mine?—I hardly answer, *no*. Have the physical laws which govern anthracite fluids been tested and applied?—*Ah! no.* Ignorance of these things reigns in the uneducated, and visionary, recklessness, a criminal defiance of danger, self-mockery, and self-sufficiency, are poor springes for this lack of knowledge! Instead of wasting his resources, and inviting his losses, no funds of destruction, and the questionable glories of the bonfire field, should be the business of a safe and benign government to hallow his losses and blight no literature and science, and the arts!—the lasting hold of a happy society. Has science been exalted, or the energies of genius been fanned?—For otherwise: they have been neglected, and "set at nought," and wasted, in too many instances, to perish "unconscious and unknown." The earnest ought to offer a premium for the best system of working coal-mines, and improving the present methods, depend on practical and economical principles, and involving a comprehensive survey of scientific principles and physical laws—to be adjudicated by the unanimous consent of a council of engineers, &c., chosen, without previous distinction, from every department of physical science; and let the amount of that premium be worthy of the efforts and exclusive devotion of the energies of the mind—say, £1000. These would be a glorious treasury for good, and a "remuneration deserved to be worked" follow, I feel confident, in a noble triumph.—*Feb. 26.* J. MORRIS.

NEW PATENT FUEL.

SIR.—We have been informed, at our Literary and Philosophical Society, with two excellent lectures on economic geology, by your old correspondent, Mr. T. Weyliffe, which, as you will readily believe, merit the general approbation they met with—they were, indeed, excellent, eliciting a unanimous and decided approbation, and in the course of which the advantages that have accrued to society and individuals by the application of geological science to agriculture, mining, and manufactures, were dwelt upon; but there was no emphasis, or particular, which I would wish to draw your attention to, that of a new fuel, known as Weyliffe's patent, which he introduced to the auditory. The main advantage which I perceive this fuel to possess, from sufficient reasons for my respecting your insertion of a few particulars respecting it and its application:—one great advantage is, from the cinders, resulting a large bulk, it can be built up, like a wall, on each side of the boiler of a war steamship, and protect it from injury by the heat of an engine. The process of its manufacture is hardly this:—Fuel and coal-dust are heated together in almost equal proportion, and the composition, when cold, ground to powder; this powder is taken to a tumbler in which sand and lime are mixed, heated to a temperature of about 1200°, about 20 per cent. of the powder is retained with the sand, as a flux, and when the materials are sufficiently calcined the sand is dried, and placed in hydraulic presses—a pressure of two tons expels the water into the form of a block, the specific gravity of which is the same as that of sand, the block, so being composed from the sand, bears the name of "Weyliffe's Patent," and is thin and compact, requiring a small space to burn it in two. This patent fuel is principally intended for the purposes of steam navigation; various descriptions have been discussed and patented, for the use of steam-ships, some of these, however, have been free from success, the principle of which have been first and opposite ideas, and the ability to bear the burden of the vessel, and the lighter is a ship. The

fuel has neither of these drawbacks—it is free from smell, and will sustain upwards of 800° of heat without even softening; it burns freely, leaves hardly any ashes, has 25 per cent. more heating power than coal, occupies, weight for weight, a third less space, is impervious to wet, and not, like coal, liable to deterioration; it is likely to get into extensive use—and large quantities of small coal, which would otherwise be wasted, will by this means be converted to profitable purposes. In districts where peat is more plentiful than coal, the proportion of coal and peat in the patent fuel may be reversed—for, when peat and coal-tar are melted down, and afterwards ground to powder, the powder may be used as a flux with peat, and an excellent fuel ministered in the manner above described. The credit of the invention is due to M. Marshal, of Brussels, and the patent has been taken out by Mr. W. Wyman, of Newcastle—both of whom, I have no doubt, will meet with the patronage their ingenuity and spirit merits. I shall be glad if this elicits some observations on the subject from those of your correspondents who may feel interested in the question.

Newcastle, Feb. 16.

ONE INTERESTED IN STREAM NAVIGATION.

SIR.—I adopt your sensible suggestion, to drop personalities in matters that ought to possess other interest for your readers, or I might resort at some length on Mr. Rogers's amusing "note and beam" charge of my being a pirate! The statements in my last ought to a "puff in the way of trade," but they are not the less true—and before Mr. Rogers throws doubts upon my statements as to "yields," &c., he had better try them himself, or get them tried. If this be done fairly, he will, perhaps, give the authority of his name to blare the excellence of our Lancashire red-ore, and "puff" its merits more loudly and more extensively. "A Looker-On" confirms my statement as to black-head producing red-short iron. I trust the paper in which this letter appears may contain his promised analysis. There was an error of calculation in the figures of my last. I made 300 tons of red-ore, at 17s., 2d., instead of 22s.; this difference of 3s. would add 1s. 4d. per ton to the cost of the puddled bars, which your readers will please note. If "A Looker-On" would be kind enough to give the cost of carriage from Newport or Cardiff to the works, and the quantity and cost of coal, wages, &c., one might form an exact estimate of the cost of best iron made by Mr. Clay's process, from a mixture of Welsh pig and our red-ore.

RED GAUNTLET.

Udnywood, Feb. 29.

DESTRUCTION OF LIFE IN MINES.

SIR.—Appalling as is the amount of the destruction of human life by accidents in coal-mines, the public, I fear, perceived, only "knows in part." A gentleman in Newcastle-on-Tyne informed me that he was in possession of cases of loss of life in coal-mines, of which the public were entirely ignorant. When I first knew Whitehaven, there was then only one newspaper, whose columns, certainly, were never chargeable with the guilt of recording any of the accidents that might have occurred in the Earl of Londonderry's coal-mines. Among the *on dies*—how far true I could not determine—it was said that the cost of fuel to the proprietor of the newspaper figured among the negatives. On one occasion, I remember, a funeral train of fourteen dead bodies having passed, it was remarked, that it became the only notice to the natives of Whitehaven that a fatal explosion had happened in one of the coal-pits!

J. MURRAY.

SIR.—In reviewing the situation of the most productive tin and copper mines in this county, I find they are nearly the whole of them near the junction of granite and killas. Wheal Vor Mine is at the foot of a granite hill, the great deposit of tin being found in the killas; near the junction, I am informed, there are scarce any traces of the indies to be seen in the hill, though they intersect it at right angles. In the Great Work Mine, about a mile south of the above, the indies are productive in the granite only—a continuation of the same indies in the killas are quite unproductive. Godolphin Mine is in killas at the foot of a granite hill; several small indies have been discovered in the hill, but neither of them has been worth exploring. Stoney Park, Camborne Vein, Dolcoath, Cook's Kitchen, Throft, and Carn Brea Mine, are all on the same run of indies, situated in the junction of granite and killas. Trevarran, Trebetherick, Wheal Bassett, and Wheal Butter, are all of or near the junction; most invariably, if the indies are productive in one structure, they are unproductive beyond the junction in the other, unless the strata should run nearly parallel with the indies, as in Dolcoath and adjoining mines, Consolidated and United Mines, Wheal Jewel, West Wheal Jewel, South Cadwallader, West Cadwallader, Wheal Robins, and Wheal Sisters Mine, and several others I could name, are at or near the junction of granite and killas. There are a few exceptions to be found in the county where productive indies have been discovered at a distance from granite hills in the killas, but rarely beyond three miles, but I know of nothing in the granite so much as two miles from the killas.—*Liskeard, Feb. 27.* A. MITCHELL.

ON RAISING "STUFF" FROM MINES.

SIR.—Having seen some observations in your valuable Journal of the 17th inst., respecting "raising 'stuff' from mines," I am induced to offer a few remarks: should you think them worthy a place in your columns, they are not at your disposal. I perfectly agree with your worthy correspondent, A. T. J. Martin, "that a new mode of raising stuff is evidently wanted where white drawing forms are considerable as items in mining expeditors;" or at least some modification of the mode now in use. On the views suggested by him, I am not at present prepared to give an opinion, but will offer one which has struck me as probable to prove more advantageous than the present mode—that is, the drawing of carts or carts from the different levels in surface, instead of killas, as a cart might pass through a shaft with ease that would carry two killies (or more), consequently, twice the quantity of stuff might be raised, by adopting the mode proposed; there might be a further saving effected, if all the workings above the levels were fitted with shafts from which the carts could be filled at once, then, by sending the carts carts to surface, the labour of filling the killies would be saved. By these means, it is probable that greater quantities of stuff might be got up at less expense, the mines kept more clean, and, consequently, better ventilated. That there are many objections to the mode proposed, the writer is aware, but should it be of the least possible benefit to the mining world, his ends will be answered.

St. Agnes, Feb. 21.

BAILWAYS, AND PROPOSED MEASURES.

SIR.—I observe that you allude, in your last, to Mr. Wallace's motion for the destruction of individual property to railways. Now, I understand that Government ought to have taken the whole thing in hand; for, if any attempt were even now made, for such as Mr. Wallace calls a fair price, or proportion, it would, in all probability, produce a revolution in enterprise of this nature. Now, the first act of the committee at present sitting in relation to the Standing Orders can never be justified. Their resolution is to the effect, that railway Acts to be passed this session shall not only be subjected (as usual) to any Act which may be passed in this session, but also equally apply to all future Acts. Now, it is, I submit, absurd to suppose for a moment that this is a fair or proper course to those who have now held before the House. Let us take, for instance, the South Devon Bill, in the course of which, to obtain the bill through Devonshire, the parties have spent nearly 30,000/-, in addition to other expenses incurred, and this to the expediting of obtaining an Act as good as those which have been proposed elsewhere—where, just as they have for some time been doing, themselves—than it is to them for the first time. And such an intended alteration to the law, as applied to railways, that the miners and a half of money which they are proposed to invest may be legally annihilated, should Parliament, in its wisdom (?) think fit to do so. I have not time to write more fully; but I cannot suppress the surprise I feel, that a session, so hard and severe on those who have not the means of reducing their steps, has not been manifested on by the press. I may again make your peris in the meantime, subscribe myself,

Tonbridge, Feb. 21.

WALL-WALKER.

SIR.—We may truly consider—How truly the work is the work of legislation, when the cause of humanity is implicated in the question! The uses of suffering and misery entailed on tens of thousands by the actions of their ancestors is truly appalling, and is object of "miserere, impunitus, and misera." Our ancestors, like Judas Iscariot, "knew not of these things," though the remedy is clearly written in the records of their jurisdictions; they may often mistake, and perhaps do, in matters they have no right to interfere with, while subjects of deep interest, including the fate of thousands, are neglected as "so little care," or set aside with cold and calculating indifference—when justice demands reparation—when, just as they have had in the mass of invasions going on at one side, of it was had

topic, as it was not alluded to in the report, which he would call on Mr. Till to read to the meeting.—Mr. TELL then read the report, which stated, that the directors, in submitting to the proprietors the railway accounts for the six months ending Dec. 31 last, had the satisfaction of showing, that the revenue had gradually improved, but as respects the half-year compared with the first six months of 1843, and also for the whole year as compared with 1842. The tonnage over the line during the past year had been 650,000 tons, against 600,000 tons in the year 1842, 647,000 in 1841, and 603,000 in 1840, thus showing a constant and steady increase in each, whilst the expenses of working the line had not materially increased, and the railway stock of engines and machinery had been kept in the most efficient state. The revenue of the six months amounted to £20,000, 10s. 1d., and the expenditure to £20,000, 10s. 1d., leaving a net profit of £10,000, 10s. 1d., which had been charged with interest upon the mortgage and loan debt, amounting together to £100,000, 10s. 1d., giving the company, with the former unappropriated money, a balance of £100,000, 10s. 1d.; the directors, therefore, recommended the payment of a dividend of 20s. per share, being at the rate of 6 per cent. per annum upon the paid-up capital. Since the last meeting, the Darlington Junction Company had entered into a contract for the sale of that line to the Darlington and Newcastle Junction Railway Company for the sum of £5,000, to which bargain the directors, as representing more than half of the undertaking, had assented, being persuaded that it would be for the interest of all parties, seeing that there was no probability of the purchasers increasing their offer. The purchase money would be paid on the passing of the bill authorising the sale, and the proportion owing to that company, amounting to about £3,000, would be applied to diminishing their liabilities and lessening the interest on their loan debt. The present capital of the company, including the mortgage debt, was about £200,000. The necessary steps had been taken for obtaining power under an Act of Parliament to lay down a third line over four miles of the Pontefract and South Shields Railway, which was to be devoted exclusively to the traffic of the Newcastle and Darlington line, and had been required by the Board of Trade, to avoid delays or accidents. This would create an outlay of 10,000*s.*, but the directors anticipated the increase in the revenue would amply compensate the company.

The CHAIRMAN moved the adoption of the report, which was seconded by Mr. BANISTER, and agreed to unanimously.—The dividend of 20s. per share was then agreed to.—Mr. HUMPHREY proposed the re-election of Robert Stephenson and M. Bouton Renouf, Esq.s, as directors, which was seconded by Mr. GRAY, and passed *ans. e.*—The CHAIRMAN returned thanks, and said, the duty of the directors was now very straightforward. There was one subject he could mention, which was, that their expenses did not proportionately increase with their revenue, for they had an increase last year of 20*s.*, and the expenses had only increased by 6*s.*, which he thought very satisfactory. (Hear.)—Mr. GRAY thought that was something under 20 per cent.

Mr. HUMPHREY moved for the re-election of Messrs. Gray and Hollier, as auditors, which was seconded by Mr. BANISTER, and carried unanimously.

Mr. SAYER then moved a vote of thanks to the chairman, which was seconded by Mr. GRAY, and passed unanimously.—The CHAIRMAN having returned thanks, the meeting separated.

BRISTOL AND EXETER RAILWAY COMPANY.

The half-yearly general meeting of the proprietors was held at the White Hart Hotel, Bristol, on Thursday, the 20th ult.—JAMES GRIMES, Esq., is the chair.—The directors' report was read by Mr. J. H. BADDELEY (the secretary), which stated that the total amount of dead rent and share of toll due from the Great Western Company to this, was for passengers and goods, £1,340,17s. 7d.; the total earnings on the line as far as Bidebridge having been for the half-year £6,343*s.*; the other claims of the company on the Great Western had been referred to arbitration. The present situation of the works was highly satisfactory, and a substantial bridge had been erected over the River Parrett, where the late accident occurred. From the state of the funds at the disposal of the directors, it was expected there would be sufficient to provide for all the necessary outlay, and, soon after the next meeting, they expected to be enabled to give a statement of the total cost; they recommended the usual dividend of 9*s.* per share for the half-year. It noticed that the bill for a South Devon Railway having passed the Committee on the Standing Orders, the public might look forward to a speedy amalgamation by railway throughout, from London by Exeter to Plymouth and Cornwall. The sum of £100,000*s.*, authorized by the proprietors to be contributed to the South Devon line, had not proved sufficient, and the directors had, on their own responsibility, incurred further liability to the extent of 500 shares, to secure the deposit required by the Standing Orders. The statement of receipts and expenditure showed a dispensable balance in hand of 100,000*s.*, and from Mr. Brunel's (the engineer) report it appeared that the whole of the works were in a forward and highly satisfactory state.—Mr. GOWEN called attention to the inconvenient arrangement of the trains on the Great Western line—viz., several of them which are called "through trains," not stopping at some of the intermediate stations near London, and, consequently, compelling passengers to incur additional expense, and the CHAIRMAN stated that a representation should be made by the secretary to the Great Western Company on the subject.—Some discussion ensued upon the propriety of dividing the dividend under present circumstances, which was, however, eventually declared, and a resolution passed, authorizing the directors to deduct the sum of 2*s.* per cent. over and above the dividend previously agreed to for the forthcoming of the South Devon line.—The report was adopted, and thanks were voted to the chairman and directors, after which the meeting separated.

BIRMINGHAM AND GLOUCESTER RAILWAY.

The half-yearly meeting of this company was held at Gloucester, on Friday, the 21st ult.—The unconstitutional state of the dividends over-strike had been exposed, induced the proprietors, six months ago, to introduce into the board of management a number of directors who were friendly to a change in the mode of conducting the goods' traffic—this being the department in which failure had been chiefly experienced. The result was, the adoption of arrangements by which the company became on the 1st of February, the almost exclusive carriers on the line, and the change has been fully justified by the increase in the revenue. The directors state that the amount received for goods in the three weeks ending the 18th of February exceeds the corresponding period of last year by £100, 1*s.*. As the half-yearly accounts, however, are made up to the 1st of December, the proprietors will not participate in the advantage of the new arrangements (provided that they prove adequately executed) till August, nearly two months after the meeting on Friday, it was resolved to pay a dividend of 20*s.* per share out of the dispensable balance of £3,700, 1*s.* 7*d.*—the dividend at the corresponding period of last year was 1*s.* 1*d.*, and in August last it was 1*s.*—The report was unanimously adopted, and the directors were recommended to elect Mr. S. Bowley chairman till the next meeting in August, in the room of Capt. Monroes, who had resigned when the change in the goods' traffic was resolved upon.

EDINBURGH AND GLASGOW RAILWAY.

The general half-yearly meeting of the shareholders was held at the offices of the company, in Glasgow, on Wednesday, the 20th ult.—J. L. LAWRENCE, Esq., is the chair.—From the report it appeared, that the prospects of the company were most promising, an average increase had taken place, accompanied with larger profits, of 2*s.* weekly, and the gradual development of the resources of the line were most satisfactory.—The statement of accounts showed a dispensable balance in hand of 20,000*s.*, of which the directors recommended a dividend of 10*s.* 1*d.*, being 1*s.* on the original shares, and 1*s.* 1*d.* on the quarter-shares. They had been enabled to reduce the rate of interest on debentures, and were now paying only 2*s.* per cent.—The report was unanimously adopted, five of the directors who stood out of office by rotation were re-elected, and a vote of thanks having been passed to the chairman and directors, the meeting broke up.

THAMES HAVEN DOCK AND RAILWAY COMPANY.

The half-yearly meeting of this company was adjourned on the 20th of February.—We understand that the new project of connecting the Greenwich line with Lewisham by way of Tilbury, and thence to the Thames Haven line with the Eastern Counties, is in favourable progress; this will be connecting the long-distant railway service to a very important, and probably lucrative, port, and its advantages to the public line to be little appreciated.

SOUTHAMPTON BOOKS COMPANY.

The Southampton half-yearly general meeting of the proprietors took place at the company's offices, in Shakespeare-street, on Wednesday, the 20th ult.—J. S. LEADER, Esq., is the chair.—After the addresses and the minutes of the last meeting had been read, and the silence of the last meeting, containing an expression of confidence in the directors, concluded, the directors' report was read, which stated that, since the last half-year meeting, good progress had been made towards the completion of the works; the construction of certain branches was being accelerated, the extension of the docks, and trials had been begun to see how far the new works had been completed. Trials for the completion of goods in general, 10*s.* but in freight, by 1*s.* per ton, were being made, with specimens ready for review and opinion, and these were being compared, but nobody seemed to be in a position to do this, because upon which the prospect of compensation depended. The party who had constructed for the dredging of the docks, was satisfied at work, and it was expected that, by Mid-March, a sufficient depth of water had been obtained for navigation, even of small tugs, and pilot boats had been provided for running up the Southampton water, no work sufficiently advanced, so was confidently expected would prove highly satisfactory. With respect to the state of the docks, the directors had recommended them at a low account, mentioned that they should be expected to be increased before long. They had also offered great facilities for navigation, the best road for the export was via the Southampton Docks, and would be followed by others in regular connexion. Vessels with large general cargoes, and were obliged to put into port, would save from 1*s.* to 1*s.* 1*d.* per ton, by going into the Southampton Docks, as compared with any other port on the southern coast.—From the accounts it appeared that the total cost of the docks to the 31st of December, 1843, had been £32,300*s.* 1*s.* 1*d.*, and the balance in hand £400*s.* 1*s.* 1*d.* About £20*s.* had been received for dock dues, and £70*s.* expense incurred; the directors intended that, for the future, additions of accounts should be appended.

After the reading of the report, much discussion took place on the former and present position of the society.—Mr. LINCOLNS (the chairman) stated, that he had the pleasure to inform them, that our West Lincolns was then in their docks, and he should uniformly make it the place of destination for all his vessels.—Mr. PARKER (a gentleman connected with several docks, pier, &c.) expressed himself as being convinced of the profitable nature of the Southampton Docks, if conducted with economy and spirit. Several other similar undertakings, with some of which he was connected, had shared the same degree of obscurity with this; but he was satisfied, that, by business-like exertions on the part of the directors, it might be made one of the best docks in the kingdom.—After many complimentary expressions from Mr. Leslie Melville towards Mr. Goldsmith, who had retired from the direction, he (Mr. G.) stated that the object of all must be to promote the interests of the dock, and the best mode of doing that would be to appoint a committee of investigation. He expressed his gratification at the intention of the directors to appoint auditors, and said that that was but one step towards doing what was right; and, in order to adopt an efficient measure, it was necessary to appoint a committee for the purpose of investigating the affairs as well as the accounts of the company—or they might, if they preferred it, delegate that duty to the auditors per hoc vice.

We are pleased to be able to record, that on this occasion less of that noisy and opposition to the proceedings of the direction took place, which has marked the meetings of this company almost from its foundation. Mr. RICHARDSON still strongly deprecated the conduct of certain directors, relative to the not paying for their shares; but, feeling that, now the docks were actually open, the only way to secure success was, a principle of unanimity among themselves, he was willing to withdraw his opposition to the reception of the report, on the understanding, that the proposal of the directors to appoint auditors should be carried out in good faith, and that their duties should embrace a careful review of the past expenditure, as well as the more half-year's accounts.—The CHAIRMAN having pledged himself that every tool and paper connected with the company should be forthcoming, for the inspection of the auditors, G. Hoigate Foster, Henry Luard, and Lemuel Goldsmith, Esq.s, were elected auditors of the Company.—Mr. RICHARDSON, however, most emphatically protested against Mr. Luard as one of the auditors, that gentleman being one of the directors concerned in the shares still unaccounted for, and whose portion amounted to £100*s.*, being on thirty eight shares of 2*s.* per share—on fact, Mr. Goldsmith could only beg any friend of Mr. Luard's, who might then be present, to point out that his acting as an auditor would only be viewed as sitting in judgment on his own cause, and that it having been stated publicly this day, that when Mr. Luard had promised the directors to act as no auditor, the mere auditing of accounts had been contemplated; but the investigation now agreed to, going as much further, Mr. Goldsmith fully expected Mr. Luard would desire being an auditor—the survey must, if he wished to be above suspicion.—Messrs. Crookshanks, Forbes, Wilcock, and Liggins, were then severally re-elected as directors—this after strong opposition to Messrs. Liggins and Crookshanks, on the ground of their having taken large proportions of the shares still unpaid for, to which attention has been so often made. The other two gentlemen were elected without opposition.—It was stated, that in future the chair would be taken each year alternately by the directors.—A vote of thanks was then passed to the chairman and directors, and the meeting separated.

X **BRISTOL AND EXETER RAILWAY COMPANY.**

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MINING CORRESPONDENCE.

ENGLISH MINES.

EAST WHEAL BONE MINE.

Feb. 26.—Annual held on the 1st of Nov. and Dec. 1*s.* 1*d.* per ton.

Load over sold November and December	4,000 <i>s.</i>
Overhead and overhead costs	3,400 <i>s.</i>
Showing a profit of 600 <i>s.</i> 1 <i>s.</i> 1 <i>d.</i> to which add balance in hand from last account, 670 <i>s.</i> 1 <i>s.</i> 1 <i>d.</i> —making a total of 670 <i>s.</i> 1 <i>s.</i> 1 <i>d.</i> from which deduct 670 <i>s.</i> 1 <i>s.</i> 1 <i>d.</i> for a dividend of 50 <i>s.</i> 1 <i>s.</i> per 100 <i>s.</i> share, leaves a balance in hand of 50 <i>s.</i> 1 <i>s.</i> 1 <i>d.</i>	1 <i>s.</i> 1 <i>d.</i>

HOLMBOE MINING COMPANY.

Feb. 26.—In the 110 fathoms level, west of Hitchins' shaft, the south hole is fifteen inches wide, and worth 2*s.* per fathom; the north hole, east of Hitchins' shaft, is ten inches wide, and worth 2*s.* per fathom; west of Goldsmith's wings, is ten inches wide, and worth 2*s.* per fathom; west of Goldsmith's wings, the north hole is sixteen inches wide, and worth 2*s.* per fathom. In the 100 fathoms level, west of Hitchins' shaft, the ground continues favourable for driving; at this level, east of Mitchell's wings, the hole is fourteen inches wide, and worth 2*s.* per fathom; in the eastern slopes, in the book of this level, the hole is two feet wide, and worth 1*s.* per fathom; in the slopes east of Doney's wings the hole is nineteen inches wide, and worth 2*s.* per fathom; in the slopes east of Hooper's rise the hole is twenty inches wide, and worth 2*s.* per fathom; west of ditto the hole is sixteen inches wide, and worth 2*s.* per fathom; in the cross-cut, towards the Flap Jack hole, the ground is more favourable for driving; at this level, east of Wall's shaft, the hole is unpredictable. The hole in the slopes, east and west of Hitchins' shaft, in the back of the ninety fathoms level, is eighteen inches wide, and worth 2*s.* per fathom. In the cross-cut of the eighty fathoms level there is an important alteration; the hole in the slopes, in the back of this level, is all taken away as high as the seventy fathoms level. In the sixty-two fathoms level, east of Bob's shaft, the hole is small and poor. The pitches are without much alteration.

NORTH WHEAL MARSH CONSOLIDATED MINES.

Feb. 27.—The engine-shaft is rock below the adit level 1*f.* 4*f.* 6*f.* 6*f.* the ground of present is rather hard for driving. In the adit level, west of the cross-cut, on the course of the hole, the hole is about two feet wide, composed of sandstone, spar, and spar, with black and yellow ore, eight inches of which is owing work. We have now rock on Bergam's hole two and a half fathoms, where it is still presenting a most cheering aspect, being about three feet wide, chiefly composed of mica-schist, with fine stones of yellow ore, but the water is very quick. Forey-hall shaft is now rock on Hambleton hole 6*f.* 4*f.*, where it is five feet wide, composed of sand, mica-schist, and spar, but the ground is much harder. In crossing at Wheal Sheba we have cut the hole on the top of the hill, but are not yet down in settled ground.

J. PHILLIPS.

WHEAL MARSH CONSOLIDATED MINES.

Feb. 28.—The water is now nine fathoms under the 100 fathoms level, and the men are busily engaged putting in bed plank and dividing the shaft. In sloping the adit level westward, the hole is about two and a half feet wide, composed of sand, mica-schist, and spar, with black and yellow ore, eight inches of which is owing work. We have now rock on Bergam's hole two and a half fathoms, where it is still presenting a most cheering aspect, being about three feet wide, chiefly composed of mica-schist, with fine stones of yellow ore, but the water is very quick. Forey-hall shaft is now rock on Hambleton hole 6*f.* 4*f.*, where it is five feet wide, composed of sand, mica-schist, and spar, but the ground is much harder. In crossing at Wheal Sheba we have cut the hole on the top of the hill, but are not yet down in settled ground.

T. POWELL.

ST. AUBIN'S CONSOLIDATED MINE.

Feb. 29.—In laying our report of this mine before you, we beg to observe that since our last meeting we have cleared and secured Maynard's shaft to the adit—which is thirty-seven fathoms deep—secured and put in a footway in Corcoran shaft; we have opened about sixty-seven fathoms of new ground, and cleared about 200 fathoms in the different levels; created a wharf, built a small cement house and smelter's shop. We have driven east on Williams' hole about twenty-eight fathoms; and, in addition to its presenting a very kindly appearance, we have had some very good stones of copper ore; and expect, in about ten fathoms, to intersect the great slopes hole, where we may reasonably expect to meet with ore. On driving on a small hole north we have cut a large and steady east and west hole three feet wide, on which we are now driving east, the ground being easy, and in very kindly holes. On Williams' hole, near Maynard's shaft, we discovered a very good bunch of copper ore, and are there, and on Towthill's hole, five pitchers, and sampled about fifteen tons of the ore on the 18th of this month, which, when sold, we have no doubt will realize £100. The tributaries still continue raising ore of a very good quality, and we hope to have another sampling in about three months' time. We propose continuing the level east on Williams' hole, until we intersect the great slopes hole, and then to drive on it towards Wheal Hawkins, where there is a large and kindly copper hole.

JOHN SAMMONS, NICHOLAS TREDENNICK.

FOREIGN MINES.

IMPERIAL BRAZILIAN MINING ASSOCIATION.

Gongorá, Nov. 23.—After much consideration and consultation with the mining captains, we have unanimously thought it best to recommend to the Chief Commissioner to stick Vaca's shaft below the sixty-two fathoms level. There is not a doubt but that jambings holds downwards beneath that level, and, as the stony gold mentioned would fit that spot, and even the miners have frequent interruptions to their productive parts, we think the chance, although, perhaps, not great, are still sufficient to warrant this step. It has met with Mr. CRICKITT's opposition, and has been considered. A suggestion made by your former colleague, Michael Williams, Esq.,—that we should wait until the stony gold mentioned may not raise—but enraged my most zealous miners. On the mountain side, north of, and above the Elisa stamp, there is a ferruginous formation, which appears, both to the experts and to me, to stand over-head of the jambings, which has yielded the stones of Gongorá. Whether this may be found to present favourable characteristics of greater depth, is, I think, an object worth at least the expense of a trial of thirty or forty fathoms into the base of the mountain; we have, accordingly, commenced one, near on the junction of Lyra's and Huichile's shafts, near which our greatest riches have been found—but, in most mining districts, mines are more frequently found on parallel veins, in the same mountains, than in different and distant parts of the same vein. I regret we have no improvement in the mine to communicate. I hope, in the course of the ensuing work, to accompany Mr. CRICKITT on a second visit to Côte Peira, and also at the same time to see Andean Potosí, where I have not yet been. It affords me the greatest pleasure to have been able to conduct trials of our ground, which have received the approval of the Chief Commissioner and engineers. I need scarcely say, how deeply I am interested in their success.

W. J. HARROLD.

MINE ACCIDENTS.

Llanidloes Colliery.—We have been favoured by a correspondence with a head shifter of the Llanidloes Colliery, to which we adverted in our last, with reference to the accidentally killed, which occurred the 1st of Dec. to that man, and, if the report which is current to true, that there was over four feet of solid rock, we

